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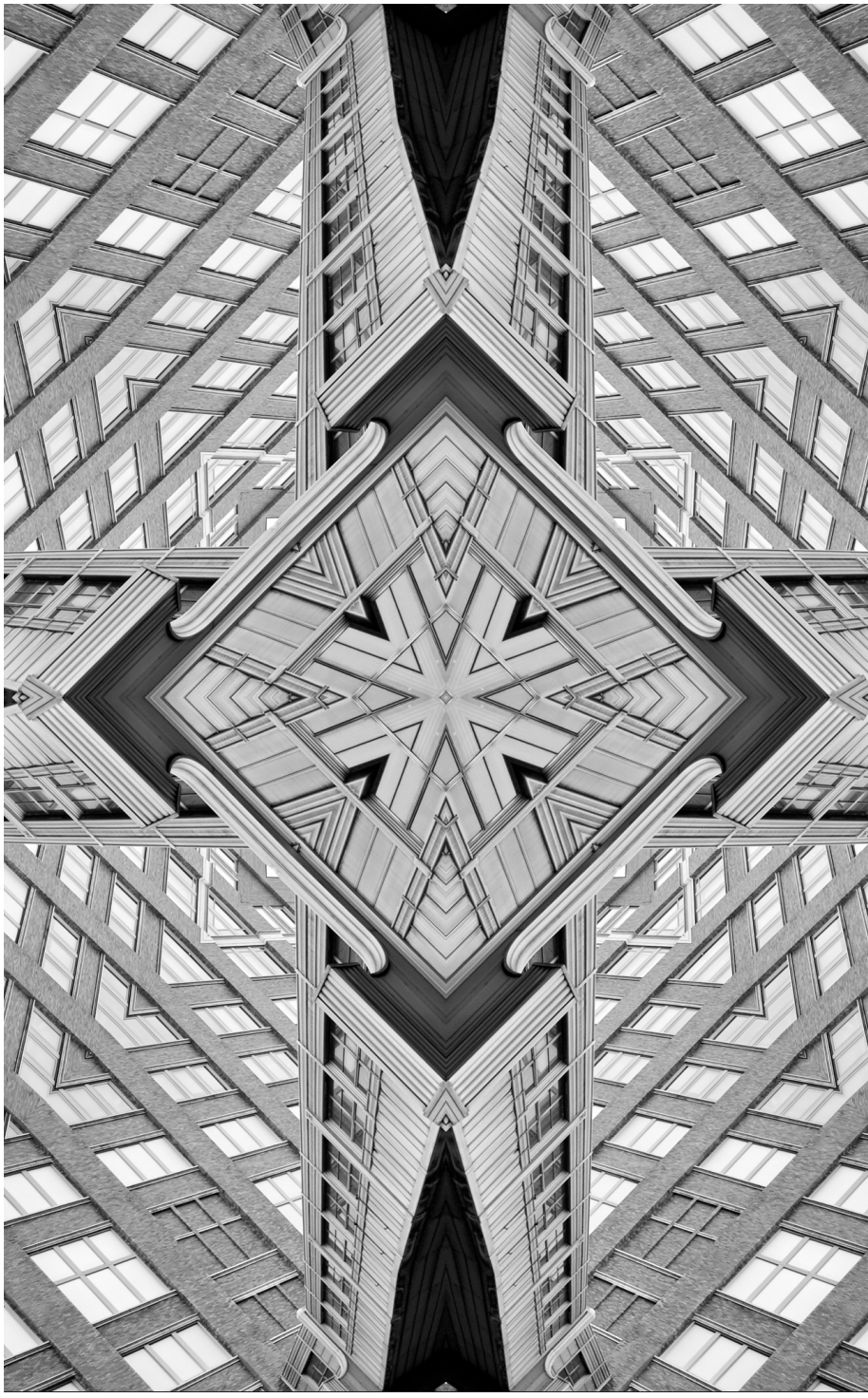

Energy Transitions in the Gulf: Realities, Risks, and the Road Ahead

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Abstract

The Gulf Cooperation Council (GCC) states have seen strong and accelerating progress in the energy transition, driven primarily by economic more than environmental factors. The adoption of low-carbon energy, including nuclear, renewables and batteries, has been most prominent in the electricity sector. Most of the Gulf countries have set net-zero carbon targets and all have renewable and hydrogen production targets in place as well. A key objective is to balance protection of the long-term competitiveness of their hydrocarbon resources with developing low-carbon industries. In the 2030s, priorities will have to shift to more ambitious decarbonisation of the industrial and transport sectors. The primary areas for improvement are to speed the transition in the lagging GCC states, Kuwait and Bahrain, to revive progress on subsidy reform and energy efficiency, and to increase investment in energy transition innovation.

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Introduction: Transition Turbulence

Energy transition globally, which seemed unstoppable only a few years ago, has run into unexpected turbulence caused by rising costs, high-profile corporate failures, and an abrupt shift in American political priorities. The Gulf region, however, has managed to stay on track and even accelerate progress, remaining one of the global bright spots in this domain.

There are many opinions about what the 'energy transition'[1] is or should be. Many environmentalists and European policymakers see it as the rapid replacement of fossil fuels, and in Germany's case, nuclear power,[2] with renewable energy, batteries, electric vehicles, and similar technologies. Although climate is the most urgent priority in the global renewable energy discourse, the emphasis has often been on boosting renewables rather than merely curbing carbon dioxide and other greenhouse gas emissions.

The Gulf's vision is rather different: it also sees a swift adoption of many of these systems, but within a more diverse energy framework where oil and gas remain important, though produced and used in a cleaner way. The United Arab Emirates (UAE), Saudi Arabia, Qatar, and Oman have advanced somewhat different but have broadly aligned policy platforms. Excluding Qatar, the countries have deadlines for net-zero greenhouse gas emissions goals: 2050 for the UAE and Oman, and 2060 for Bahrain, Kuwait, and Saudi Arabia. Several other targets for emissions reduction, the expansion of renewable energy capacity, efficiency improvements, and sector-specific goals—particularly for the oil and gas industry—have been identified.[3]

Major oil- and gas-exporting regions, other than the Gulf, have had different approaches. Norway, Australia, and Canada have seen tensions in domestic politics, but have largely sought to preserve their fossil fuel industries while embedding techniques such as carbon capture and electrification, and simultaneously promoting renewable energy and electric vehicles. Russia has continued investing heavily in its fossil fuel resources, doing very little for low-carbon energy beyond nuclear power,[4] and obstructing international climate action.[5] The United States (US) has also moved sharply in this direction under the second Trump administration.

Introduction: Transition Turbulence

Approaches in Latin America, notably Brazil, have vacillated between extremes depending on the political forces in power; however, the economic importance of oil and gas has generally remained. Policies in Azerbaijan (the host of the COP29 climate conference in 2024) and Malaysia, by contrast, are closer to those of the GCC (Gulf Cooperation Council). Finally, a group of the more politically troubled countries of Libya, Iraq, Iran, Venezuela, and Nigeria, have been unable to formulate a consistent climate policy or consistently follow long-term plans because of short-term imperatives. These include dealing with insurgencies and civil wars, rival governments, international sanctions, disputed elections, and economic crises.

The progress in the Gulf region's energy transition journey can be understood through a few parameters. Summarised in Table 1 are key statistics:

Table 1. Low-Carbon Energy in the GCC: Status and Targets

	Bahrain	Kuwait	Oman	Qatar	Saudi Arabia	UAE
Net-Zero Target (Year)	2060	2060	2050	None	2060	2050
Renewable Capacity, 2024 (GW)	0.069	0.114	0.722	1.699	4.743	6.144
Renewable Target	5% by 2025 10% by 2035	15% by 2030	30% by 2030	18% by 2030	50% by 2030	32% by 2030 (incl. nuclear)
Nuclear Capacity, 2024 (GW)	0	0	0	0	0	5.6
CO_2 Emissions from Energy, 2024 (Mt)	NA	105.6	87.7	135.6	636.4	302.5
CCS Capacity Target (Mt/y)	NA	NA	16.3 (2050)	11 (2035)	44 (2035)	10 (2030)
Hydrogen production Target (Mt/y)	0.1 (2030)	0.3 (2030)	1 (2030) 3.75 (2040)	0.2 green (2030)	2.9 (2030) 4 (2035)	1 green, 0.4 blue (2030) 7.5 (2040)

Sources: International Renewable Energy Agency,[6], Energy Institute,[7] national publications

Progress So Far

The GCC countries have advanced in areas where there is a clear economic or strategic rationale and competitive advantage—for instance, in the renewable energy space, particularly solar power. The UAE and Saudi Arabia have set a few records for the lowest-cost procurement of utility-scale solar power and constructed several of the world's largest single-site solar farms. These include the Al Dhafra plant in Abu Dhabi (2 GW), the Al Shuaibah plant in the Mecca province of Saudi Arabia (2.06 GW), and the multi-phase Mohammed bin Rashid solar park in Dubai, which is expected to reach 6.26 GW by 2029 and 7.26 GW by 2030. In 2015, the six GCC countries had a total of 196 megawatts of installed renewable capacity; by 2024, it reached 13,491 megawatts (13.5 GW). Compared to the situation ten years ago, this represents an almost unimaginable step forward.

Given the cost inflation and rising interest rates from 2022, the trend of ever-lower bid prices has halted but not reversed, and further falls could resume owing to overcapacity in Chinese solar manufacturing. In any case, solar photovoltaic power is already cheaper than gas-fired generation, even at the generally low gas prices prevailing in the Gulf. It has been cheaper than oil for over a decade.[8] Wind power is also cost-competitive in parts of Saudi Arabia and Oman.

Kuwait and Bahrain are the two laggards on renewables in the Gulf region, with only 114 and 69 megawatts of installed capacity, respectively, in 2024. This is not to ignore the signs of progress, too. Bapco Energies, Bahrain's oil company, agreed in May 2024 to develop 2 GW of wind power.[9] Kuwait, which suffered from power shortages in 2024-25, signed a deal with Chinese companies in March 2025 to build 3.5 GW of solar projects.[10]

Solar photovoltaic power for residences is sparsely used despite the low cost of utility-scale solar and the still moderate price of grid electricity. The absence of additional incentives (such as carbon prices, priority grid access, tax credits, or premium electricity prices for solar) and various other issues of cost and misaligned incentives are also contributing factors.[11] However, solar water heating is being adopted widely at the domestic level, encouraged by building codes. Distributed solar installations for businesses have become increasingly popular in the UAE and Saudi Arabia.

Progress So Far

The UAE witnessed a watershed moment in January 2025 when Abu Dhabi's clean energy development company, Masdar, and main utility, Emirates Water and Electricity Company (EWEC), announced that they would build a 5.2-GW solar farm with 19 gigawatt-hours of batteries, which would output a steady 1 GW. Simple calculations suggest a cost of about US$60 per megawatt-hour for generated electricity,[12] a highly cost-competitive estimate even with gas-fired generation.

Similar projects should be applicable across the GCC and the broader Middle East. Saudi Arabia has also launched several battery energy storage (BESS) projects. Dubai is expected to complete a pumped hydroelectric storage facility at the mountain exclave of Hatta in mid-2025, while other UAE emirates, Ras Al Khaimah, Oman, and Saudi Arabia are also considering pumped hydro plants for longer-term seasonal energy storage. A small percentage of national land areas should be sufficient to accommodate enough solar energy to meet all future electricity needs, as well as additional requirements for desalination, electric vehicles, electrified industry, and 'green' hydrogen production. This is particularly true in the case of the relatively sparsely populated Saudi Arabia and Oman.

The UAE has also implemented a major civil nuclear programme, developing 5.6 GW of capacity. Further nuclear expansion, whether by larger traditional reactors or small modular reactors (SMRs), has been raised as a possibility. Saudi Arabia is also seeking nuclear power,[13] and none of the other GCC countries are likely to pursue it. Nuclear power appears to be relatively expensive when compared to renewables, proving to be advantageous in large-scale generation independent of daily, seasonal, and weather-related fluctuations.

Energy Efficiency: Tackling the Subsidy Challenge

Beyond the solar/hydroelectric and nuclear domains, an important subsidy reform was initiated in Saudi Arabia and the UAE in 2015-16, which raised the price of electricity, gas, and water closer to fully cost-reflective levels, and road fuels towards international market levels. This catalysed the rationalisation of consumption, better aligning the pricing of competing energy sources and increasing the viability of distributed solar power. Progress on subsidy reform has slowed in recent years, with remaining subsidies allocated towards road fuels in a few GCC countries, subsidised electricity and water prices for GCC citizens in general, and continuing very low electricity prices in Kuwait.

Other energy efficiency policies have included building and appliance standards, retrofit programmes, the establishment of energy service companies, and the promotion of district cooling. The thermal desalination of water is being gradually replaced by the more efficient and flexible, electrically driven reverse osmosis method.

Nevertheless, GCC energy consumption per capita and per unit of Gross Domestic Product (GDP) remains high by international standards. This is partly due to the hot and often humid climate, which necessitates the heavy use of air-conditioning, with water needs met almost entirely by desalination, and a large proportion of energy-intensive industry. However, low levels of energy efficiency are also a legacy of many years of cheap and abundant energy, and urban design that is car-centric and makes little use of natural shade and cooling.

Decarbonising the Hydrocarbon Sector

The national oil and gas industries, which remain the bedrock of the GCC economies, have also sought to improve their environmental performance. This includes traditional measures to improve energy efficiency, reduce flaring, and cut methane leakage. Reported figures on flaring and methane emissions vary widely between sources, but the Energy Institute shows a fall of about 12 percent from a peak in 2016 to 2023.[14] GCC flaring levels are already low when compared to their neighbours, Iran and Iraq, and other major producers like Russia and the US, among others.

In some bolder moves, Saudi Aramco, the Abu Dhabi National Oil Company (ADNOC), and QatarEnergy have also implemented carbon capture and storage (CCS) projects. The ADNOC-Emirates Steel facility can capture up to 0.8 million tonnes of carbon dioxide annually; Aramco captures 0.8 million tonnes annually from the Hawiyah gas plant, and for enhanced oil recovery in the Uthmaniyah field. QatarGas injects 2.1 million tonnes, captured annually from its gas processing, into a deep saline formation.[15]

ADNOC is electrifying its onshore and offshore operations; the latter is facilitated by the US$3.8-billion 'Project Lightning'. This reduces the use of smaller, inefficient on-site gas turbines and draws electricity from the national grid, including a rising share of solar and nuclear power. ADNOC reports that this saved 4.8 million tonnes of greenhouse gas emissions in 2023, out of its total upstream emissions of 24 million tonnes of carbon dioxide equivalent: a notable share of the national emissions estimated at 340.8 million tonnes in 2023.[16] It projects that the carbon intensity of its offshore production will drop from 7.3 kg CO_2 equivalent per barrel of oil equivalent (BOE) in 2021 to 6.3 CO_2e in 2025 and 2.4 CO_2e from 2028 onwards.[17] Similar integration has occurred among industrial facilities, notably Emirates Steel and Emirates Global Aluminium (EGA).

The power generation sector has already switched almost entirely from oil to gas, except in Saudi Arabia and Kuwait. Saudi Arabia burns up to 1.4 million barrels per day of crude and fuel oil during the summer for power generation. It targets replacing its oil consumption for electricity, with 50 percent gas and 50 percent renewables by 2030.[18] The current pace of deployment suggests that this target will be missed but that substantial progress will be made, and it could be achieved three to four years later. This results in substantial savings of carbon dioxide emissions, and releases oil for export (although Saudi Arabia has to balance this against its OPEC obligations).

The GCC's sovereign wealth funds (SWFs) and strategic investment companies have played an important role in the energy transition to date, as have their national oil companies (NOCs). NOCs generate the most national wealth; the various SWFs and other bodies invest it in the domestic economy and save it overseas. International investments, including taking positions in perceived 'industries of the future', may also have a strategic angle by securing stakes in key technologies that may be brought to the host country, or helping hedge against future declines in oil and gas demand.

These roles vary widely. Some of the GCC NOCs, notably Saudi Aramco, ADNOC, and QatarEnergy, are investing heavily in international oil and gas projects. This tends to be weighted more towards gas, as a lower-carbon fuel with a perceived longer runway.

Strategic investors, notably Abu Dhabi's Masdar (now jointly owned by strategic state investor Mubadala, national oil company ADNOC, and the government's holding vehicle ADQ), are injecting higher amounts of capital into renewables and hydrogen both at home and abroad. Such entities include Masdar, which targets 100 GW of capacity by 2030, Acwa Power of Saudi Arabia (more than half-owned by the Public Investment Fund (PIF) and other Saudi government entities), Amea Power (a private Abu Dhabi company), and Nebras Power, a venture of the Qatar Electricity and Water Company.

These firms own a range of renewable generation and other energy assets across the Middle East and North Africa, Sub-Saharan Africa, Central Asia, South-East Asia, Europe, the US, and other geographies. While some smaller projects may be politically inspired, and these companies may benefit from the backing of their national governments, their investments target attractive commercial returns. They are increasingly skilled and cost-competitive project developers, especially in geographies less favoured by Western companies. Masdar, in particular, has also been an active acquirer of renewable companies and assets in the US, Europe, and Africa. Both Masdar and Acwa are highly active in the Caspian-Central Asia region (notably Uzbekistan, Azerbaijan, and Kazakhstan), an area little followed by Western renewable players.

Saudi Arabia's PIF has a more domestic focus on energy transition, including positions in electric vehicle makers linked to factories in the Kingdom. But PIF's stake in Acwa gives it exposure to one of the largest deployers of international renewables and reverse osmosis desalination. So far, such dual approaches seem largely to have avoided tensions between sourcing funds from domestic hydrocarbon production, deploying them into hydrocarbon projects elsewhere, and investing in new and low-carbon energies.

The More Challenging Next Steps

Having made good progress and built the foundation for energy transition, GCC countries should prioritise faster progress and tackle the more challenging areas of decarbonisation.

First, it should be acknowledged that progress in reducing greenhouse gas emissions has been limited. Figures from different databases are inconsistent and also vary from national statistics.[19] However, they suggest that the rate of emissions growth has slowed since 2012, and was negative in 2017, 2018, and 2020. (It increased again in 2021-23.) Strong economic and population growth has driven a continuing rise, offset at times by subsidy reform and the effect of periods of lower oil prices.

The largest group of emissions comes from the power sector, representing 37 percent;[20] industry (fuel combustion plus processes) contributes a further 30 percent; transport, 20 percent; and the oil and gas industry, 11 percent (buildings, waste, and agriculture represent the remainder). Decarbonising power appears to be a solved, or at least, solvable problem owing to multiple components working in tandem: the oil-to-gas transition in the short term, accompanied by improved generation efficiency, the use of reverse osmosis desalination; and a wholesale switch to solar and wind plus batteries and, in some cases, nuclear power. A small proportion of gas-fired plants may be equipped with carbon capture or converted to burn hydrogen or ammonia to provide flexible backup.

GCC countries do not face some of the constraints common to other countries while achieving a higher share of renewable energy. Open land for solar power and transmission lines is readily available in every state except Bahrain. Demand patterns, with a high and long summer peak for air-conditioning, match quite well with solar output with a moderate amount of battery capacity, unlike the situation in north-western Europe where winter is the period of high demand.

Nevertheless, Bahrain and Kuwait in particular have made little progress in renewables, though there are signs of change. The other GCC countries can also move faster on their commitments. Decarbonisation of the electricity grid could be taken on at a faster pace, lowering costs, improving reliability, and creating export earnings if there were better connectivity within the GCC countries and their neighbours. Intra-GCC electricity trade in 2021 amounted to only 0.15 percent of total generation, compared to 5 percent

in the EU.[21] While interconnections to Egypt, Jordan, and Iraq are either in place or under construction, these will only modestly boost export potential.

The burden of increasing demand on the electricity sector could also be improved by better energy efficiency. After a flurry of subsidy reforms and efficiency programmes around 2015-16, progress appears to have slowed, and there has been little or no improvement in Kuwait in particular. Electric vehicles will moderately contribute to electricity demand growth. A 10 percent share of the UAE fleet by 2030 would consume on average 100-150 MW—a small fraction of the 42 GW installed at the end of 2023.

The decarbonisation of the power sector unlocks considerable potential for the decarbonisation of industry, via conversion to direct electric drive of a few processes, and the use of electric heating. Concentrated solar thermal can provide process heat in some situations. Some industries, especially in the medium term, will be quicker and easier to decarbonise using CCS, such as iron and steel. Cement, in particular, produces carbon dioxide as an unavoidable by-product, and eliminating emissions requires CCS or a switch to novel materials. In the medium term, hydrogen's role is mostly in decarbonising ammonia and urea production, but it can also aid in iron-making and perhaps serve as a backup fuel for other industries.

Oman, Saudi Arabia, the UAE, and Qatar—roughly in that order—have made efforts to develop their industries for low-carbon hydrogen and derivatives, but have been constrained by factors including higher-than-expected costs, the difficulty of transporting hydrogen over long distances, and the reluctance of potential buyers in Europe, Japan, South Korea and elsewhere, to sign up for long-term contracts at the premium prices required. The hydrogen project at Saudi Arabia's new city of Neom is the largest single commitment (and is due to start production in December 2026), but it faces commercial obstacles to profitability.

Several of the Gulf's national oil companies have net-zero targets (Sharjah National Oil Company 2032, ADNOC 2045, Saudi Aramco 2050, and Petroleum Development Oman 2050). Decarbonisation rests mostly on a combination of curbing methane leaks, carbon capture and storage, and electrification. The challenge of industrial decarbonisation is not so much in technology, but in the size of investment required and the commercial incentive. Businesses operating in competitive markets, often export-oriented,

include the petrochemical and aluminium industries (both large contributors to the Gulf region's GDP). Customers willing to pay sizeable 'green premiums' for the offtake of large quantities of low-carbon materials are scarce. The EU's Carbon Border Adjustment Mechanism will, when fully implemented, offer some advantage to Gulf businesses that can switch to lower-carbon production.

Otherwise, strong progress in industrial decarbonisation must await direct government direction, the implementation of local or GCC-wide carbon pricing or similar limits, and/or the wider international spread of carbon pricing mechanisms and CBAMs. Saudi Arabia and the UAE have made some progress on voluntary carbon markets, while from January 2025, the UAE requires larger companies to report their emissions—[22] the first step to developing a carbon pricing or trading model.

Electric vehicles are an increasingly common sight on UAE roads, with a 3-5-percent share in new sales in 2023. There are estimates that this figure could reach 15 percent by 2030.[23] GCC countries and cities have various targets for EV deployment in taxi fleets and in general. Urban and intercity rail projects are also underway, with the Dubai Metro being operational since 2009 and followed by Doha (2019) and Riyadh (December 2024). In 2022, it was estimated that the Dubai Metro had saved 2.6 million tonnes of CO_2 emissions since its inception. The UAE's Etihad Rail, which links to Oman and expands the Saudi system, offers further emissions reductions.

The relatively short distances typically driven in GCC countries, except for Saudi Arabia, make range less of a challenge. There is a current lag in the setting up of charging, but improvements at a suitable pace should be feasible. There are few direct incentives for EVs, but they may not be required as electric vehicles become increasingly competitive in lifetime cost and performance. This would be aided by raising fuel prices at least to international parity, as the UAE has done from August 2015.

The Gulf's important maritime and aviation sectors face challenges from decarbonisation pushes. On the one hand, they are well-placed to manufacture the synthetic fuels (ammonia, 'green' methanol, hydrogen-derived synthetic jet fuel, or other options) that are required for near-zero carbon transport. On the other hand, they have disquiet about the rising costs and about setting precedents for the forced phase-out of oil in some key markets.

The More Challenging Next Steps

Bahrain, Oman, Saudi Arabia and the UAE voted against the International Maritime Organisation's decision in April 2025 to introduce a carbon pricing system for large ships.[24]

Overall, the Gulf's economies remain relatively simple, with a limited number of large emitters, often state-owned, and equipped with modern infrastructure. Deep decarbonisation at reasonable costs appears achievable without requiring any major technological advances.

Long-term Goals

The existing Gulf economy and its future direction are not in conflict, but they are in tension. Oil and gas remain the bedrock of the region's economy. They can be produced more cleanly and efficiently, and the Gulf's low extraction costs and low carbon footprint of production should enable it to be the leading player in the global hydrocarbon industry by mid-century and beyond. However, the continued success of that model faces stronger competition from non-fossil alternatives and the growing impact of worsening climate change.

There has been much discussion, particularly in Europe, of 'stranded assets' and 'unburnable reserves', although it has mostly faded since 2022. The concept is that some or most fossil fuel assets will become unviable before the end of their normal operational life or the depletion of their reserves because of climate policy. This appears plausible in Europe because of increasingly strict legislation and public opposition to new fossil fuel development. It does not appear very likely on a global scale in the medium or even long term. However, renewable electricity, electric vehicles, and the electrification of home and industrial heating are likely to pose an increasing challenge to demand for the three main fossil fuels in different ways and on different timelines.

Depending on the production policy of the OPEC+ group (and, of course, whether it survives and continues to maintain an influence on markets), this could lead to a fall in oil and gas prices, or a fall in demand (requiring lower production), or a combination of the two. The GCC countries—particularly, Kuwait, Qatar, Saudi Arabia and the UAE—would consider that their very low production costs and low upstream carbon footprint would leave them as the 'last person standing'. They do not exactly face the stranded asset risk (except perhaps in some of their overseas investments), but are exposed to a future of lower hydrocarbon revenues. This challenge of potential falling revenues—which are perennially volatile—has been faced since at least the 1970s.

Dubai, Oman, and Bahrain, in particular, have been aware of the need to diversify their economies, exports, and sources of government revenue for a long period because of their relatively limited and higher-cost oil and gas resources. This has led to substantial progress, particularly in the UAE, and more recently, in Saudi Arabia and Oman. Therefore, though an important driver, worries about a future of declining oil and gas revenue are only one part of the climate imperative for the GCC.

The wealthy GCC countries will not be immune to the impact of heatwaves, rising sea levels, dust storms, droughts, torrential downpours, and other climatic dangers. Even if they were, they are surrounded by large, climate-vulnerable neighbours with deep political and security problems. They are also deeply embedded in global supply chains and vulnerable to the dangers of interruptions in world trade, particularly food imports.

For reasons of self-interest as well as enlightened internationalism, the GCC has to plan for a world where oil and gas demand may be significantly more constrained or naturally declining within the next two to three decades, and well within the lifetime of most Gulf citizens and major capital investments being made today. The shift in mood during the last two years since COP28 in Dubai in November 2023 has suggested a slower energy transition and a longer role for hydrocarbons.

The Gulf has manifold strategic opportunities by leveraging its assets in hydrocarbon-adjacent technologies, carbon capture and storage potential, high-quality renewable energy resources, geographic centrality, deployable capital, and political multipolarity. This covers the production of low-carbon materials for export, including 'green' steel, aluminium and ammonia, hydrogen and synthetic fuels, and electricity, as well as potential future materials. Recent investments in the mining sector, both at home (mostly in Saudi Arabia) and abroad (particularly in Africa), play into various energy transition as well as geo-economic themes.

Yet, these opportunities, though promising, will not generate the rents that have historically flowed from oil and gas. To continue building on the GCC's high-income base, such assets need to be combined with investments in advanced technology and embedded into more sophisticated value chains. This includes making big strategic bets in emerging strategic energy technologies, as GCC countries are already doing in areas such as AI and aerospace.

Gulf-based research and development has picked up in recent years, but remains low: in the UAE's case, it rose from 0.5 percent of GDP in 2011 to 1.49 percent in 2021. However, in the other GCC countries, it stands at 0.5 percent or less. This still compares unfavourably to the world average of 2.68 percent, or the high-income countries' 2.93 percent. The relatively poorer Egypt and Jordan outperform all the GCC other than the UAE in this regard.[25] Israel's

R&D spending is at 6 percent of GDP, and the region still lacks world-class universities, although this has been improving.

Such a technology-focussed approach would benefit from greater regional integration, both within the GCC and with neighbours, to build critical mass. The GCC, with its small population and economy compared to the US, EU, or China, has frequently suffered from too much duplicative competition instead of different countries seeking varying competitive niches. They can also forge international alliances with like-minded partners—India in particular being an obvious candidate.

There are political hurdles to overcome in forging such collaboration, but the GCC states can at least use their existing institutions. The Organisation of Petroleum-Exporting Countries (OPEC), of which Saudi Arabia, the UAE, and Kuwait are among the leading members, could evolve from a body mostly focussed on managing the oil market to one helping its members adapt to and take advantage of energy transition opportunities. The Organisation of Arab Petroleum Exporting Countries renamed itself the Arab Energy Organisation in 2024, and all the GCC states (except Oman) are members: a welcome shift in focus. Similarly, the Arab Petroleum Investment Corporation (APICORP), whose shareholders again include all the GCC members other than Oman, and which already had many non-oil investments, renamed itself The Arab Energy Fund (TAEF) in December 2023, with a new focus on decarbonisation opportunities.

While the 2010s could be seen mostly as a decade of preparation, the 2020s so far have been a decade of delivery, and the 2030s will call for the GCC to embrace the decade of transformation to a cleaner energy system and a more diversified and robust economy. Political dangers, trade turbulence, over-confidence in the long-term invulnerability of oil and gas, and the risk of excessive retrenchment in the face of low oil prices are all risks to this progress.

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